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Original Article

Obstetrics and Gynaecology Section

Women's Views on Routine Antenatal Ultrasound Scan in a Low Resource Nigerian Setting

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ABSTRACT

Introduction: Obstetric ultrasound is a popular and attractive management tool in Obstetrics. In recent times, it has gained wide acceptance amongst expectant mothers in many parts of the developing world. Many Obstetricians now regard it as an integral part of antenatal care. Despite this popularity, little is known about women's views regarding the antenatal ultrasound scan in Nigeria.

Aim: The aim of the study was to explore the views of women on the routine antenatal ultrasound scan in Abakaliki, Southeast Nigeria.

Materials and Methods: This was a cross-sectional descriptive study involving 335 antenatal women who booked for antenatal care at the Federal Teaching Hospital, Abakaliki (FETHA), between July 2017 to November 2017. Sampling was by non probability sampling technique. The survey instrument was a semi structured questionnaire. Statistical analysis was performed using IBM SPSS Statistics for Windows, version 24.0. Armonk, NY: IBM Corp. Data were analysed using descriptive statistics.

Results: A total of 335 antenatal women were interviewed. Mean age was 27.9±4.3 years (range 17 to 44 years). Women's knowledge of ultrasound use for antenatal care and the indications for the scan was high; 326 (97.6%) out of 334 and 244 (75.5%) out of 323 respectively. 254 (75%) out of 331 were not properly counselled before the ultrasound procedure. About 35 (10%) out of 333 thought the ultrasound scan could harm their unborn baby. 167 (52%) out of 321 of the women interacted with the sonologist during the ultrasound scan. After the procedure, 247 (76.0%) out of 325 participants had the ultrasound findings explained to them. About 275 (82%) out of 334 wanted to know the sex of their foetus. The ultrasound experience was positive for 198 (60%) out of 330 of the women.

Conclusion: Knowledge of antenatal ultrasound scan and the indication for the scan was high amongst present study women. There was equally a high level of interaction between the sonologist and the pregnant women during the scan. This may have contributed to the high rate of satisfaction and positive ultrasound experience recorded in this study. There was however, lack of proper counselling of the women by the obstetricians before the ultrasound procedure. Improvement in this aspect of patient care is needed to further enhance the ultrasound experience of present study women, and to reduce anxiety and dispel any misconceptions and irrational expectations regarding the antenatal ultrasound scan.

Keywords: Pregnancy, Ultrasound, Women's experiences

INTRODUCTION

Ultrasound has become a routine part of care for pregnant women in most countries with developed health services [1]. In recent times, obstetric ultrasound has gained wide acceptance in Sub Saharan Africa, and many obstetricians now regard it as an integral part of antenatal care [2]. Unlike other methods used for prenatal screening and diagnosis, it offers parents direct access to images of the foetus. This makes obstetric ultrasound popular and attractive among expectant mothers and a clear majority of women participate in the routine scans offered during pregnancy [1,3,4]. Women see prenatal testing as a means for reassurance about the health and well-being of their foetus [5]. Sometimes however, ultrasound use may yield unexpected findings which may have adverse effects on the mother and may provoke emotional crisis [1,6,7]. With the rapid development of ultrasound technology in obstetrics over the past decade in developing countries, there has been comparative neglect of the views of pregnant women receiving this visual technology. The importance of allowing for patients' views, alongside medical and economic considerations regarding care assessment during pregnancy and childbirth, had been emphasised as far back as the 1980's in the developed world [8]. While the international literature is rich in studies of women's views on ultrasound in Europe and North America, little has been published on women's views on the antenatal ultrasound scan in developing countries. Research into women's views on ultrasound services is especially important given that ultrasound is a relatively new technology in this part of the world, and like any other new technology has the potential to raise social, ethical and economic dilemmas for both health workers and recipients of the services. Previous studies have documented significant psychological harm from antenatal ultrasound as well as positive psychological effects [9-12]. Unfortunately, women in developing countries are often neglected on matters concerning their health [13]. This situation has given rise to misconceptions and fears about the prenatal ultrasound which health care workers may be unaware of. Therefore, present study was conducted with an aim to explore the views of pregnant women in Abakaliki, South East Nigeria, regarding the prenatal ultrasound scan.

MATERIALS AND METHODS

Study Area

Federal Teaching Hospital, Abakaliki, is the only tertiary level health facility in Ebonyi state. The hospital has a standard maternity unit which caters for the obstetric needs of women in Ebonyi and environs. Ebonyi is mainly rural with about 75% of the population living in the rural areas. The main occupation of the people of Ebonyi state is farming. Although, reports indicate that the utilisation of antenatal care services in Nigeria is generally low, the National Demographic Health Survey (NDHS) of 2013 showed that eight in 10 pregnant women in south eastern Nigeria (of which Ebonyi state

is included) accessed antenatal care from a skilled birth attendant [14]. Annual delivery rate at this study centre is about 10,000.

Study Design and Sampling Method

This was a cross-sectional descriptive study involving 335 antenatal women who attended the antenatal clinic between July 2017 to November 2017. Ethical clearance was sought and obtained from the research and ethics committee of the Federal Teaching Hospital, Abakaliki (FETHA) to conduct the study. The target population was made up of pregnant women who had had an ultrasound scan in their current pregnancy irrespective of gestational age. No other specific exclusion criteria were imposed. Sampling was by non probability sampling technique. Using a total annual delivery of 10,000, we calculated the sample size for the study based on the assumption of an antenatal ultrasound rate of 70% a margin of error of 5% and a confidence interval of 95% [10]. Using Epi-info version 7.1.4.0 (Centre for Disease Control and Prevention, Chicago, IL, USA) statistical software, the approximate sample size for the study was 313. We adjusted this figure for 5% non response or missing data, giving a new sample size of 329, which was rounded off to 335. The questionnaires were administered by three house officers who also interpreted the English language to vernacular for those who did not understand English.

Instrument

The survey instrument was a semi structured questionnaire, which was validated in a pilot survey that involved 30 antenatal clients (Cronbach's alpha, 0.78). The questionnaire incorporated both open and closed ended questions. Women were required to record both objective (reasons for the ultrasound scan) and subjective responses such as the feelings of the woman towards ultrasound imaging and its importance, her fears, anxieties and satisfaction with the scan. They were required to record what they understood to be the reason for the scan, based on any information that had been provided to them or for which they had asked. A checklist of 10 specific categories of reasons was presented, including 'no reason given'. The women expressed their overall experience towards the ultrasound scan on a five-point 'Likert-type' scale, ranging from 'very negative' to 'very positive'.

STATISTICAL ANALYSIS

Statistical analysis was performed using IBM SPSS Statistics for Windows, version 24.0. Armonk, NY: IBM Corp. Data were presented in the form of frequency tables. The age variable was presented as mean±SD. The data were analysed using descriptive statistics.

RESULTS

A total of 335 antenatal women were interviewed. [Table/Fig-1] shows the sociodemographic characteristics of the women. Mean age of the participants was 27.9±4.3 years, with a range of 17 to 44 years. 317 (91.6%) out of 335 were married, 325 (97.0%) out of 334 were Christians and 264 (78.8%) out of 334 had educational attainment beyond the secondary level. [Table/Fig-2] shows the various views expressed by the respondents concerning the antenatal ultrasound. Knowledge of ultrasound use during antenatal care was quite high for 326 (97.6%) out of 334 study participants. All the respondents went for scans because they had been referred by a doctor. For majority of the respondents i.e., 244 (75.5%) out of 323, the doctor informed them of the reason for which they were asked to go for the scan. The reported reasons for the ultrasound request are shown in [Table/Fig-3], according to the checklist provided to subjects. The commonest reason for which respondents were asked to go for scan was to check the presentation of the baby i.e., 114 (20.8%) out of 508. [Table/Fig-4] shows the negative or bad experiences of the study participants during the ultrasound scan procedure. About 17% and 14% of the women complained of the 'lack of communication from the sonologist' and 'poor attitude of health workers' respectively. About 91% of the women had their expectations for the ultrasound scan met. Almost all the participants 326 (97.9%) suggested that ultrasound scan be made a routine procedure at each antenatal visit. The overall ultrasound scan experience was 'positive' for 198 (60%) out of 330 of the study participants.

Sociodemographic characteristics		Responses (%)
Marital status	Married	317 (94.6)
	Unmarried	18 (5.4)
	Total	335 (100)
Highest level of education	Post secondary	264 (79)
	Secondary	57 (17.1)
	Primary	13 (3.9)
	Total	334 (100)
Religion	Christian	325 (97.9)
	Islam	5 (1.5)
	Traditionalist	2 (0.6)
	Total	332 (100)

[Table/Fig-1]: Sociodemographic characteristics of the study participants.

Views of women	Responses	Number (%)
Knowledge of use of ultrasound scan during antenatal care	Yes	326 (97.6)
	No	8 (2.4)
	Total	334 (100)
Knowledge of the reason for the ultrasound scan	Yes	244 (75.5)
	No	79 (24.5)
	Total	323 (100)
Do you think ultrasound is harmful to the baby?	Yes	35 (10.5)
	No	251 (75.4)
	I don't know	47 (14.1)
	Total	333 (100)
Were you counselled on the ultrasound procedure?	Yes	77 (23.3)
	No	254 (76.7)
	Total	331 (100)
Did you have any fears about the ultrasound scan?	Yes	37 (11.2)
	No	294 (88.8)
	Total	331 (100)
Did the sonographer communicate with you?	Yes	167 (52.0)
	No	154 (48.0)
	Total	321 (100)
Were you allowed to visualise your baby?	Yes	170 (51.5)
	No	160 (48.5)
	Total	330 (100)
How did you feel when you saw the baby?	Very disappointed	2 (0.6)
	Disappointed	2 (0.6)
	Indifferent	175 (52.2)
	Delighted	67 (20.0)
	Very delighted	89 (26.6)
	Total	335 (100)
What was your feeling after the scan?	Satisfied	233 (71.5)
	Not satisfied	27 (8.3)
	Indifferent	66 (20.2)
	Total	326 (100)
Did the doctor explain the result of the scan to you?	Yes	247 (76.0)
	No	78 (24.0)
	Total	325 (100.0)

Would you want to be told the sex of your baby?	Yes	275 (82.3)
	No	59 (17.7)
	Total	334 (100.0)
Why do you want to know the sex of the baby?	To enable adequate preparation	217 (78.3)
	Desire for a particular gender	33 (11.9)
	Other reasons	26 (9.4)
	No particular reason	1 (0.4)
	Total	277 (100)
Were your expectations for the scan met?	Yes	301 (91.2)
	No	29 (8.8)
	Total	330 (100.0)
Do you think ultrasound scan should be done at every antenatal visit?	Yes	326 (97.9)
	No	7 (2.1)
	Total	333 (100.0)
What was your overall experience with the ultrasound scan?	Very negative	3 (0.9)
	Negative	9 (2.7)
	Indifferent	44 (13.3)
	Positive	198 (60.0)
	Very positive	76 (23.0)
	Total	330 (100.0)

[Table/Fig-2]: Views of women on the antenatal ultrasound scan.

Indications for scan	Responses (%)
To check presentation of the baby	114 (20.8)
To search for abnormalities	94 (17.2)
To determine gestational age	83 (15.2)
To confirm pregnancy	56 (10.2)
To locate placental position	50 (9.1)
To check fetal growth	50 (9.1)
Check number of babies	38 (6.9)
To check weight of the baby	32 (5.8)
To know the sex of the baby	24 (4.4)
No reason given	7 (1.3)
Total responses	548 (100)

[Table/Fig-3]: Reasons for the ultrasound scan.

Negative experiences	Responses (%)
Full bladder	80 (19.9)
Lack of communication from the sonologist	70 (17.4)
High cost of the ultrasound scan	65 (16.1)
Poor attitude of health workers	58 (14.4)
Long scanning periods	41 (10.2)
Probe discomfort	31 (7.7)
Unfriendly scanning environment	31 (7.7)
Lack of privacy	27 (6.7)
Total responses	403 (100)

[Table/Fig-4]: Women's negative experiences during the ultrasound scan.

DISCUSSION

Most women in this study were aware of the use of ultrasound for antenatal care. A similar observation was made by Ugwu AC et al., in Anambra state, Southeast Nigeria, where 85% of the pregnant women were aware of the use of ultrasound for antenatal care [15]. This level of awareness is not unexpected considering the widespread availability and use of ultrasound in healthcare, especially in urban centres in Nigeria. Studies have observed a rising trend in the request for prenatal ultrasound in both private and public health facilities in Nigeria [16,17]. For most of the study participants, ultrasound scan should be made a routine procedure for all antenatal women at each antenatal visit. Indeed, many pregnant women are bound to make self requests for ultrasound even when it is not indicated by their doctor, just to see their babies or to know the sex of the baby [18]. Women had adequate knowledge of the reason for their ultrasound scan request. This compares to a study in Nottingham, UK where for almost 85% of scans done, respondents indicated that they had been provided at least one reason for the scan [19]. Most studies however. show some deficit in women's knowledge of the purpose of their scan. In one study in Ghana, more than 45% of the women did not have any reasons given to them for the ultrasound scan [20]. In the UK, a study that observed routine antenatal consultations in six hospitals reported that information about foetal anomaly scanning was extremely limited, with approximately two thirds of women receiving no information in the consultation about the purposes of the scan [21]. Present study findings indicate that although women showed adequate knowledge about the purpose or reasons for their scan, they were however, not adequately counselled on the ultrasound scan procedure. Similar observations have been made by some researchers even in the developed countries [22,23]. A survey of UK hospital practice reported that just under one half the maternity units surveyed, routinely gave women information about the potential of a scan to detect anomalies [24]. Only one in 10 of the women sampled in the Nottingham, UK study reported that they were informed about the ultrasound procedure [19]. Most of these studies demonstrate poor flow of information from the obstetricians to the clients concerning the benefits and limitations of the antenatal ultrasound scan. Gaps in the provision of such information to antenatal clients has consistently been reported to be associated with increased fear and misconceptions of the obstetric scan [10,12]. This finding is worrisome and needs to be addressed by healthcare providers. Proper counselling prior to the ultrasound scan is essential to alleviate fear, and to discourage irrational expectations, considering the fact that most women in developing countries accept the scan without asking questions [25]. In Enugu, southeast Nigeria, Chukwudebelu WO et al., noted that women accepted the use of the antenatal ultrasound with an uncritical mind [13]. Interestingly, present study findings indicate that most of the women who had ultrasound were properly counselled by the obstetrician following the procedure. This is a welcome development and a far departure from the situation described earlier where women go for the ultrasound scan not knowing what to expect. In Ghana, a study had observed that almost 55% of the women did not have the results of the scan explained to them by their doctors or midwives, and this contributed to a high level of dissatisfaction among the women [20]. It is possible that many centres take the initial counselling of the clients before the procedure for granted because they consider ultrasound scan as routine, harmless and non invasive [2,6]. The commonest reasons noted for a scan request in this study were to 'confirm the presentation of the baby', 'search for foetal anomalies' and 'determine gestational age'. Unfortunately, in many resource-poor settings, women attend their first antenatal visit very late or even at the time of delivery. Onoh RC et al., reported in 2012 that most women (83.1%) at this study centre access antenatal care late, because of misconceptions and poverty [26].

Early studies had reported that women feared that ultrasound might harm the foetus. This was seen with the introduction of ultrasound in Botswana, where some women were afraid that the scan might hurt or kill them [10]. Recent research however, has shown that majority of women especially in developed countries no longer have fears regarding the safety of ultrasound [1]. In the present study, women generally were unaware of any safety debate concerning the use of prenatal ultrasound. Only about 10% expressed the view that ultrasound could be harmful to the unborn baby. In one Swedish study, women interviewed before a scan had anxieties about what the scan might reveal, but only two percent feared that it might harm the baby [27]. In a study by Crang-Svalenias E et al., 4 percent were apprehensive that the scan might harm the baby [28]. Bashoura H

et al., reports that concerns about adverse effects of ultrasound rarely emerged; only two women out of a sample of 500 mentioned possible harm from the scan [2]. However, the fear of getting cancer was a common perception seen in women of the Kampala district of Uganda [18].

Interaction between the sonologist and the client during the ultrasound examination has been described as a major issue that influences women's ultrasound experience. More than half of the study participants interacted with the sonologist during the procedure and could visualise the baby on the ultrasound monitor. Visualisation of the foetus on ultrasound has been a source of pleasure, comfort and emotional reassurance for pregnant women and has been reported to enhance feelings of bonding between women and their foetuses [2,4,29-33]. About 26% of the women who visualized their baby on the ultrasound monitor said they felt 'very delighted' about the experience. In one Ghanaian study most of the women (70.9%) complained that the sonologist did not explain the procedure to them, and less than one-fifth could see the foetus on the monitor [20]. Lack of opportunity to ask questions during the ultrasound procedure has also been reported from Uganda where women's questions were either not responded to or were responded rudely. This lack of communication led to most of the women being dissatisfied with the person doing the ultrasound [18]. In the Ghanaian study; referred to, one in five of the respondents did not appreciate any advantages of the use of ultrasound in pregnancy, because of poor communication between the sonologist and the client [20].

The social use of ultrasound to find out the sex of the baby was very important for most of our pregnant mothers, where 82% desired to know the sex of their foetus [34]. This figure is comparable to 94.5% reported in Sokoto (Nigeria), and almost a hundred percent from Uganda [18]; however, figures as low as 21.6% and 22.6% have been reported from Nnewi and Ibadan (both in Nigeria) respectively [35,36]. Present study findings indicate that knowledge of the foetal sex would enable the women to prepare early in terms of shopping for the babies. Mabuuke AG et al., reported that many women go for the scan just to know the foetal sex, as a result of the desire to buy items early without spending a lot of money on unnecessarily items [18]. Other reasons given for wanting to know the foetal sex was the desire for a particular gender, and the sense of relief if the sex of the foetus matched their preferences. In many Nigerian cultures, there exists the notion of gender bias in which high premium is placed on the male child. Knowing the sex of the foetus has been documented as one of the major motivations for which women go for antenatal scans [1,2,6,10]. Bashoura H et al., had noted that most women expressed a sense of relief if the sex of the baby matched their preferences, or the preferences of their husbands or in-laws [2]. In one study that analysed the records of 384 women in and around Nottingham, UK, Whynes DK however, noted that none of the subjects recorded disappointment at discovering foetal gender [19]. Evidence suggests that women who learn that they are carrying a foetus of the 'wrong' gender, according to prior aspirations, are more depressed and experience more labour problems [19,37].

It is pertinent to note that about 17% of respondents raised the issue that doctors who performed ultrasound did not take time to explain and discuss the findings during the procedure, while 14% complained of poor attitude of health workers. Issues of this nature are of great concern because they raise questions concerning our 'traditional obstetric practice' vis-a-vis global best practices. This may contribute to loss of confidence and negative perception of health system by the patients. However, these aspects of patient care could easily be improved through regular training and re-training of health workers on global best practices and the need for positive attitude at the work place. Nevertheless, most of the study participants (71.5%) were satisfied with the scan, and their expectations were met in most of cases (91.2%). The overall ultrasound experience was positive for the great majority of the women.

LIMITATION

Finally, it is pertinent to point out that although the survey data for the study were collected first hand, we noted some missing responses for some of the variables in the survey instrument during data clean up. As a result, data was analysed in a case-wise manner, accounting for the different denominators for the descriptive statistics. This discrepancy may have resulted from recall bias, since the participants had to recall their past ultrasound experiences. However, this apparent flaw had already been taken care of in the sample size calculation, where adjustment was made for a 5% non response or missing variables.

CONCLUSION

Present study offers insight into issues surrounding ultrasound use in a low resource setting like ours. We noted that knowledge of antenatal ultrasound scan and the indication for the scan was high amongst our women. There was equally a high level of interaction between the sonologist and the pregnant women during the scan. This may have contributed to the high rate of satisfaction and positive ultrasound experience recorded in this study. However, one key issue pointed out by this study and which will have to be addressed is the need for obstetricians to carry out proper counselling prior to any ultrasound request. This will reduce anxiety and fear and dispel any misconceptions and irrational expectations regarding the ultrasound scan, and further improve our women's ultrasound experience.

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